

科學與社會 -- 科學與社會的互動

第 1 頁

—— 科學與社會的互動

科學與社會 Nature Magazine 的 AlphaGo Zero paper 科學與社會的互動 [1]

科學與社會 Alpha 科學與社會的互動 leukotomy 科學與社會的互動

科學

科學與社會的互動

科學與社會的互動

科學與社會的互動 talent pool 科學與社會的互動

科學與社會的互動 talent pool 科學與社會的互動

科學與社會的互動

科學與社會的互動

科學 Karl Raimund Popper 科學與社會的互動

科學與社會的互動

科學與社會的互動 [2]

科學與社會的互動 STEM (science, technology, engineering and mathematics) 科學與社會的互動

科學與社會的互動

科學與社會的互動

科學與社會的互動

科學與社會的互動 “科學與社會” 科學與社會的互動

□□□□□□

□□□□□□ **Alpha** □□□□□□

Deepmind [3]

AlphaGo Master 0000000000 AlphaGo Master00000AlphaGo Master 000000000
0000000000000000000000 AlphaGo Zero 00 AlphaGo Master 000 AlphaGo Master
0000000000000

AlphaGo Zero 4000 AlphaGo Master 4000 AlphaGo Zero 1000000[4] 1000000
AlphaGo Master 1000000000 16 1000000 AlphaGo Zero 1000000000 18 1000000
AlphaGo Zero 14 16 45 1000000000000

1. Nature Magazine AlphaGo Deepmind AlphaGo Zero AlphaGo Master

2) AlphaGo Zero local trap
AlphaGo Zero Alpha

[AlphaGo Zero](#) [AlphaGo Master](#) [AlphaGo Master](#) [AlphaGo Master](#) [5] [Nature Magazine](#) [AlphaGo Zero paper](#) [AlphaGo Master](#) [deep-learning](#)

AlphaGo Zero AlphaGo Master AlphaGo Master

AlphaGo Zero [6] game

Superhuman  Clock 
 AlphaGo Zero  superhuman 
 AlphaGo Zero  Nature Magazine  AlphaGo Zero paper 
superhuman 

superhuman Technological Singularity
Demis Hassabis AlphaGo

Alpha Deepmind team
Alpha Alpha Alpha

AlphaGo Zero AlphaGo Zero superhuman [7] superhuman

superhuman 深度學習強化學習 superhuman 問題

AlphaGo Zero 與 AlphaGo Master 問題 AlphaGo Master 與 superhuman AlphaGo Master 與 60 問題 3 AlphaGo Master 與 superhuman AlphaGo Master 問題 AlphaGo Zero 與 superhuman 問題 superhuman 問題 [8]

Alpha 問題 Alpha 問題

Alpha Turing Machine 深度學習 Alpha 問題 Deepmind 問題 AlphaGo Zero 與 AlphaGo Master 問題 AlphaGo Zero 與 AlphaGo Zero 問題

Deep-learning 問題 credit reinforcement 問題 credit reinforcement 問題 local trap 問題

leukotomy 問題 reinforcement 問題 peer review 問題 Socratic method 問題 peer review 問題 Socratic method 問題 peer review 問題

ideas are cheap 問題 idea 問題 cheap reinforcement 問題 [9] 問題

AlphaGo 問題 reinforcement

[10]

[11]

[12]

Turing Machine 問題 Turing Machine 問題 local trap 問題 Universal approximation 問題

2) leukotomy Leukotomy BRAIN Initiative AlphaGo

3) personality intelligence Walter Freeman personality intelligence

BRAIN Initiative project NIH BRAIN 2025 Report “there is general agreement that types can be defined provisionally by invariant and generally intrinsic properties” invariant agreement insights “envision an integrated, systematic census of neuronal and glial cell types” dynamic brain mapping “Link brain activity to behavior” “Produce conceptual foundations for understanding the biological basis of mental processes” mental processes behavior

BRAIN Initiative project personality intelligence brain mapping personality intelligence hidden assumptions

personality intelligence

BRAIN Initiative project brain mapping mental diseases personality intelligence personality intelligence leukotomy

leukotomy Alpha

personality intelligence mental diseases

BRAIN Initiative brain mapping human level intelligence personalities intelligence mental diseases BRAIN Initiative neurosciences AlphaGo generic human intelligence Alpha neurosciences [18]

AlphaGo Master AlphaGo Zero AlphaGo AlphaGo Master Alpha

Alpha

Technological Singularity BRAIN Initiative project

[illegible]

~~~~~

[2] [\[10\]](#)

□□□□□□□□□□□□□□□□□□□□+□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□  
 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□  
 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

[illegible]

[3] 碁盤 Cracking Go 碁盤 Deep Blue 碁盤 AlphaGo 碁盤 Alpha 碁盤

[4] <http://www.alphago-games.com/> AlphaGo Zero AlphaGo Zero  
<https://www.101weigi.com/chessbook/player/38348/>

[illegible]

[6] [OpenAI GPT-4o](#) superhuman [Alpha](#)

Turing Machine  $\rightarrow$  limitation  
 Alpha  $\rightarrow$  Alpha

[illegible]

Alpha


**Alpha** Google AlphaGo AlphaGo Zero AlphaGo Human level artificial intelligence Alpha

[7] <http://www.alphago-games.com/> Full Strength of AlphaGo Zero, i.e. Final Form 40 Blocks 20 Blocks Not Full Strength of AlphaGo Zero AlphaGo Zero superhuman

[9] 2012 [Show, don't tell](#) [show](#) [Socratic method](#) [tell and discuss](#)

[10] 田口玄二:"Go gaming is strictly defined within a very small space. Industrial automations are typically designed in well controlled environments, but not strictly defined. Car driving is regulated, but the environment is not well controlled"田口玄二 田口玄二博士の「モノづくり」哲学

[11] AlphaGo Master 60+3

[12] 

Alpha

[13] 李世石 AlphaGo Master 与 AlphaGo 的三番棋对局  
李世石 AlphaGo Master 与 AlphaGo 的三番棋对局  
李世石 Alpha 棋谱

[illegible]

AlphaGo



[illegible]

[15] Alpha

Alpha

Alpha  
BRAIN Initiative project

[illegible]

[16] Leukotomy  BRAIN Initiative project  **BRIAN Initiative**

[17] [REDACTED]  
[REDACTED]

I do not cross the boundary between sciences and religions; Gödel's  
theorems suggest metaphysics from humans may not work

[illegible][illegible]

[18]  $\alpha$  Alpha